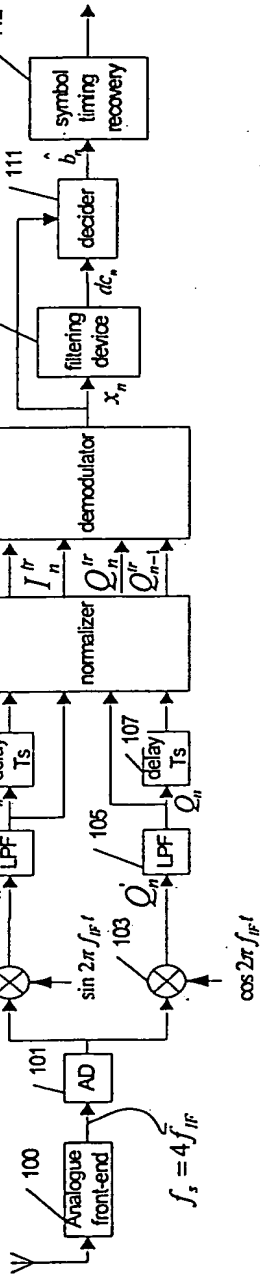


FIGURE 1

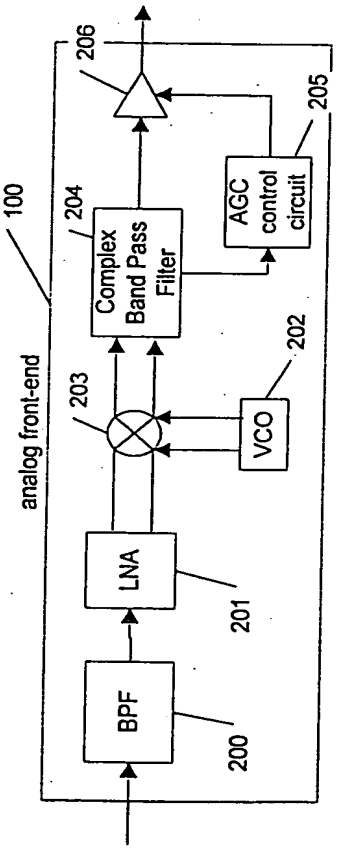
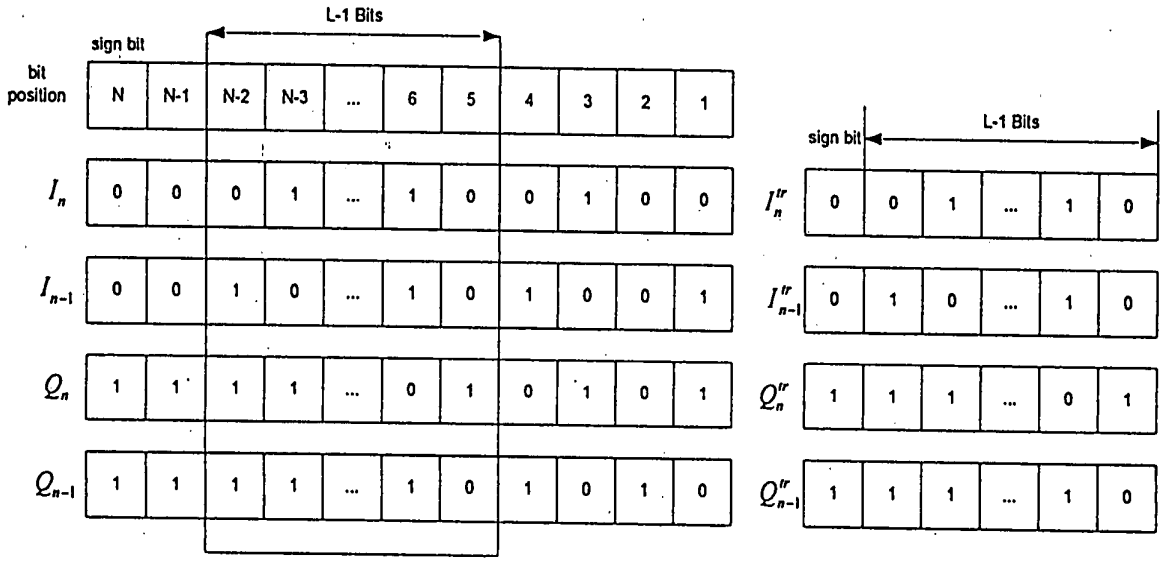


FIG. 2



I_{n-1} *has the* max*imum absolute value among* $I_{n-1}, I_n, Q_n, Q_{n-1}$

$i = N - 2$

FIG. 3

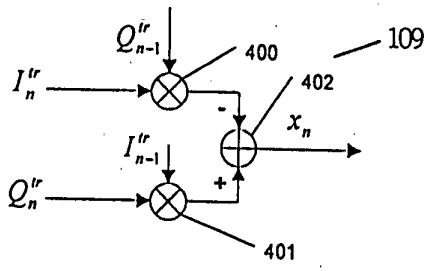


FIG. 4

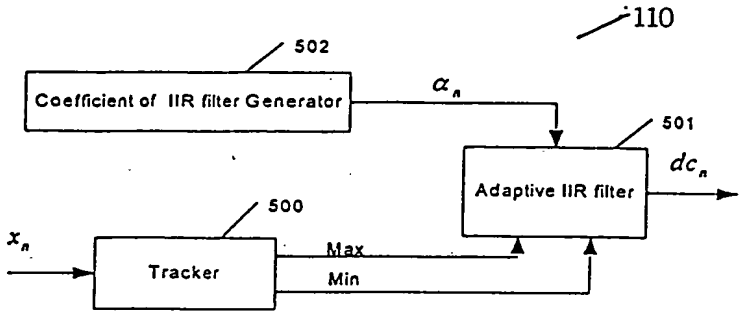

110
502
Coefficient of IIR filter Generator
α_n
501
Adaptive IIR filter
dc_n
500
x_n
Tracker
Max
Min

FIG. 5

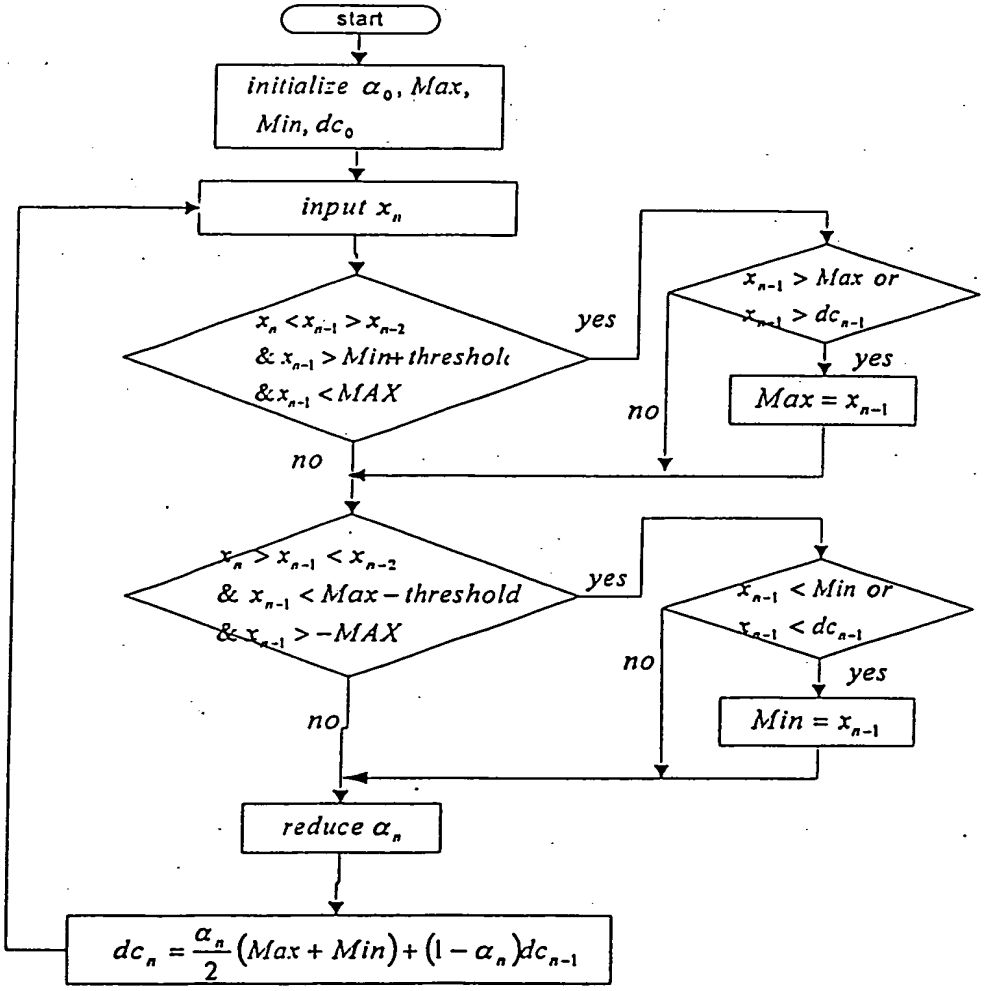

start
initialize α_0, Max, Min, dc_0
input x_n
$x_n < x_{n-1} > x_{n-2}$
& $x_{n-1} >$ Min+ threshold
& $x_{n-1} <$ MAX
yes
no
$x_{n-1} >$ Max or $x_{n-1} > dc_{n-1}$
yes
$Max = x_{n-1}$
no
$x_n > x_{n-1} < x_{n-2}$
& $x_{n-1} <$ Max − threshold
& $x_{n-1} > -MAX$
yes
no
$x_{n-1} <$ Min or $x_{n-1} < dc_{n-1}$
yes
$Min = x_{n-1}$
no
reduce α_n
$dc_n = \frac{\alpha_n}{2}(Max + Min) + (1 - \alpha_n)dc_{n-1}$

FIG. 6

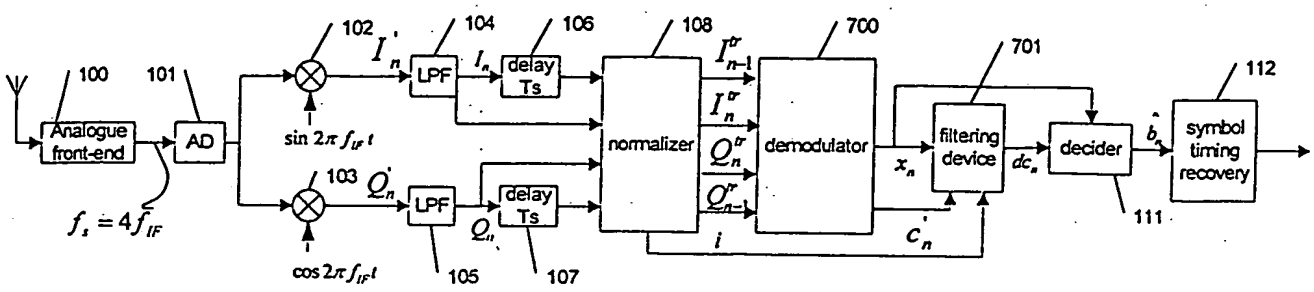


FIGURE 7

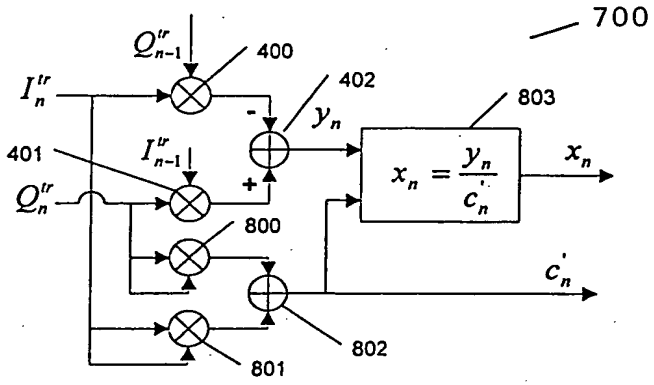


FIG. 8

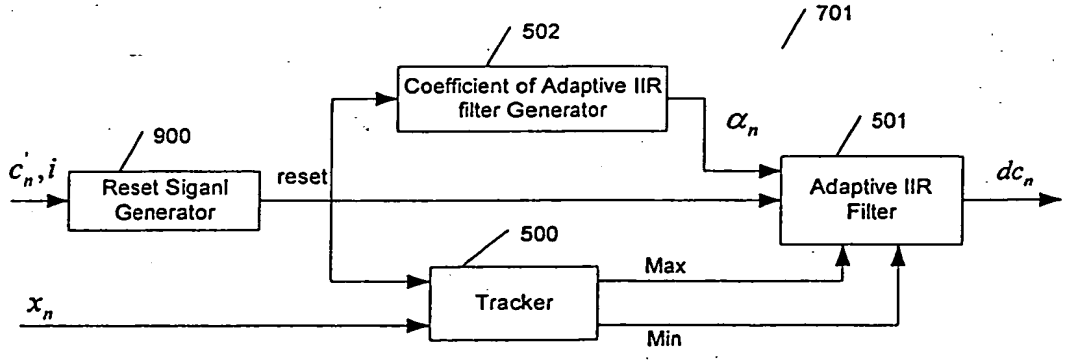


FIG. 9

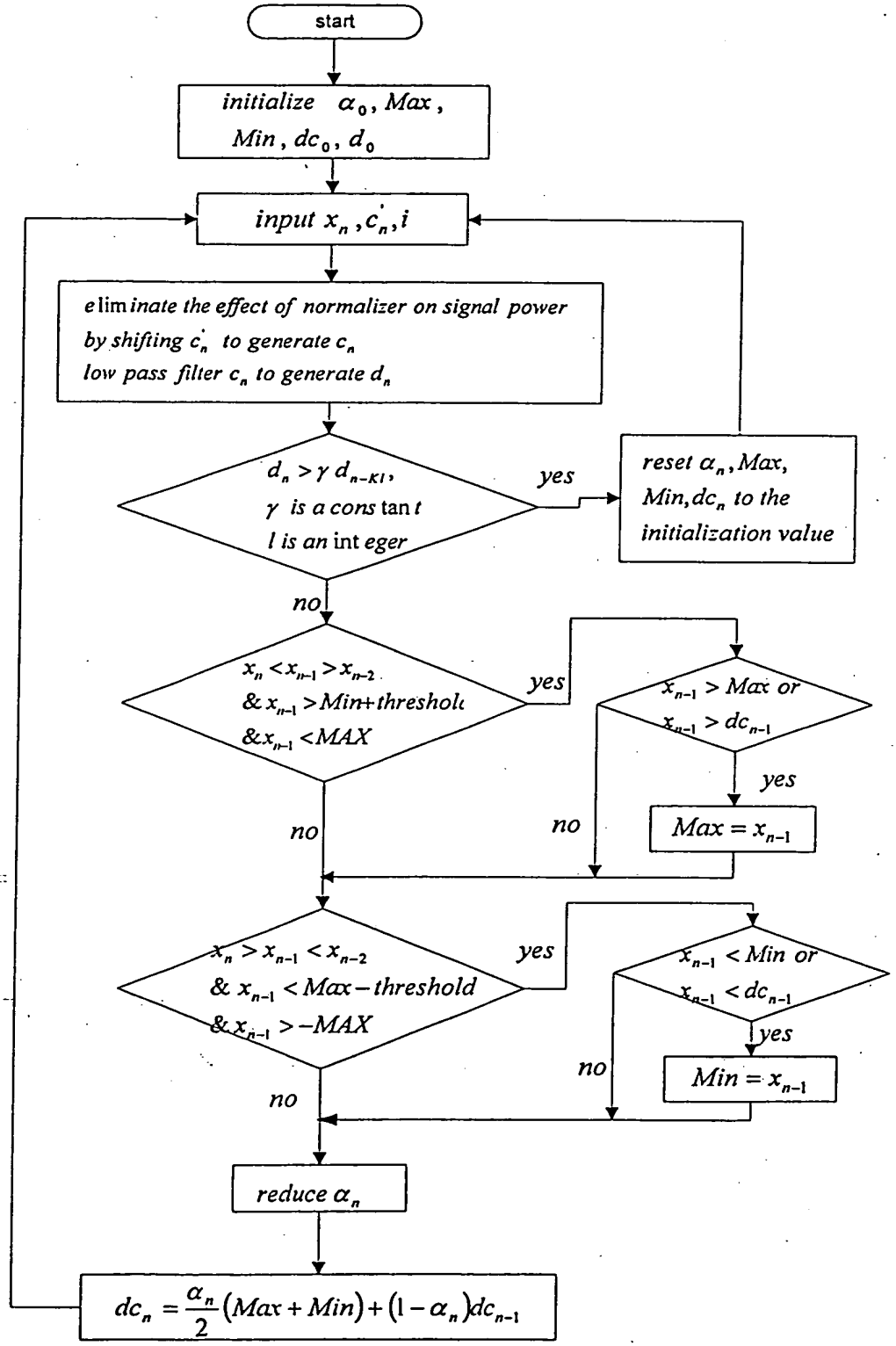

start
initialize α_0, Max, Min, dc_0, d_0
input x_n, $c_n^{'}$, i
eliminate the effect of normalizer on signal power by shifting $c_n^{'}$ to generate c_n
low pass filter c_n to generate d_n
$d_n > \gamma\, d_{n-kl}$, γ is a constant
l is an integer
yes
reset α_n, Max, Min, dc_n to the initialization value
no
$x_n < x_{n-1} > x_{n-2}$ & $x_{n-1} > Min + threshold$ & $x_{n-1} < MAX$
yes
$x_{n-1} > Max$ or $x_{n-1} > dc_{n-1}$
yes
$Max = x_{n-1}$
no
no
$x_n > x_{n-1} < x_{n-2}$ & $x_{n-1} < Max - threshold$ & $x_{n-1} > -MAX$
yes
$x_{n-1} < Min$ or $x_{n-1} < dc_{n-1}$
yes
$Min = x_{n-1}$
no
no
reduce α_n
$dc_n = \frac{\alpha_n}{2}(Max + Min) + (1 - \alpha_n) dc_{n-1}$

FIG. 10